

What is Claimed Is:

1. A method of deep space communication between a deep space location and Earth, comprising:

communicating between a planetoid and the deep space location via an optical communications link; and

5 communicating between a user and the planetoid.

2. The method of Claim 1, wherein the communicating between the user and the planetoid further comprises communicating between the user and a satellite in an orbit about the Earth and communicating between the satellite and the planetoid.

10 3. The method of Claim 1, wherein communicating between the user and the planetoid further comprises communicating using a radio frequency communications link.

4. The method of Claim 1, wherein communicating between the user and the planetoid further comprises communicating using an optical
15 communications link.

5. The method of Claim 1, further comprising employing a satellite in an orbit about the Earth adapted to receive communications from the planetoid and adapted to transmit communications to a user on Earth.

6. The method of Claim 1, wherein placing a planetoid in an orbit
20 about the Sun further comprises placing a plurality of planetoids in an orbit about the Sun.

7. The method of Claim 6, wherein the plurality of planetoids are geometrically substantially evenly distributed in the orbit about the Sun.

8. The method of Claim 1, wherein the placing the planetoid in the orbit about the Sun further comprises placing the planetoid in a substantially similar orbit to the Earth's orbit about the Sun.

9. The method of Claim 8, wherein a plane of the orbit substantially
5 similar to Earth's orbit is tilted with respect to a plane of the Earth's orbit about the Sun.

10. A planetoid system orbiting the Sun comprising:
a satellite health module for maintaining a planetoid in an orbit;
a payload adapted to communicate between a location in deep space and
10 an Earth user; and
an interface mechanically and electronically connecting the payload and the satellite health module.

11. The planetoid system of Claim 10, wherein the satellite health module further comprises:
15 an attitude control subsystem for maintaining attitude control of the planetoid;
a power subsystem for maintaining power to the planetoid including powering the attitude control subsystem and the payload;
a telemetry, tracking, and commanding subsystem for transmitting
20 planetoid telemetry, receiving planetoid commands, and enabling tracking of the planetoid; and
a thermal subsystem for maintaining a desired temperature on the planetoid.

12. The planetoid system of Claim 10, wherein the payload further comprises:

- an optical transceiver for transmitting and receiving optical signals;
- a radio frequency transmitter for transmitting radio frequency signals; and
- 5 an optical to radio frequency converter for converting a signal from optical to radio frequency and from radio frequency to optical.

13. The planetoid system of Claim 12, wherein the payload further comprises a memory and a central processing unit.

14. The planetoid system of Claim 12, wherein the payload further
10 comprises a telescope.

15. A method of deep space communication using at least one planetoid to communicate between a deep space location and a user, the method comprising:

- receiving a communication signal in a first data format;
- 15 converting the communication signal into a second data format; and
- transmitting the communication signal in the second data format.

16. The method of Claim 15, wherein the first data format is an optical format.

17. The method of Claim 15, wherein the first data format is a radio
20 frequency data format.

18. The method of Claim 15, wherein the second data format is an optical data format.

19. The method of Claim 15, wherein the second data format is a radio frequency data format.

20. The method of Claim 15, further comprises storing the communication signal in the first data format in a memory on the planetoid.

21. The method of Claim 15, further comprises storing the communication signal in the second data format in a memory on the planetoid.

5 22. The method of Claim 15, further comprising processing the communication signal on the planetoid.